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OUTCOMES OF STAKEHOLDER CONSULTATIONS ORGANIZED AT MANDAPAM REGIONAL CENTRE OF ICAR-CMFRI

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PREFACE

The significance of conducting stakeholder consultation in the research activities has already been recognized since it would bring ground level status and experiences of people engaged. In fisheries, the stakeholders encompasses fishers, aqua farmers, boat owners, processing companies, leaders of fishermen associations, exporters, conservation officials, researchers, official from Department of State Fisheries and Forest, NGOs, etc., Mandapam Regional Centre of ICAR-Central Marine Fisheries Research Institute organised stakeholder consultations on seaweed, sea cucumber, seahorse, fisheries and aquaculture and Non-detriment findings of CITES Appendix II listed elasmobranchs. The outcomes of such meetings organised during 2014-2017 is briefed in this booklet. I compliment the scientists and staff who are involved in coordinating the stakeholders meeting. I hope this booklet will provide an insight on current issues pertinent to important marine fishery resources.

Dr. A. Gopalakrishnan
Director, ICAR-CMFRI

CONTENTS

Outcomes of stakeholder consultation organized at Mandapam Regional Centre of ICAR-CMFRI

The stakeholders meet and their associated consultation on various important marine fisheries essential for a successful management plan. To validate and improve the scientific data and knowledge acquired during research for management and governance, the agreement of stakeholders is believed to be crucial. The purpose of conducting the stakeholders meet on specific resources is to identify the potential problems and prospects of the resources from the primary resource users which in turn prioritised the research focus. It also establishes the rationale for stakeholder's participation in research and management. Engaging stakeholders on the perspective issues of research, the credibility of the research outcome can be easily understood and thereby create a better rapport with the resource users. The outcomes of various stakeholders meet conducted by Mandapam Regional Centre of CMFRI for the last few years on various marine resources were briefly summarized here.

I. Seaweed stakeholders meeting (24th July 2014)

The seaweed stakeholders meeting was organized to discuss and understand the problems and prospects on various aspects of seaweed production, seed procurement, farming practices, depletion of indigenous varieties, insurance coverage, harvesting and post harvesting activities. About 40 stakeholders representing the seaweed farmers, seaweed collectors from natural habitat, seaweed industry, conservation officials and seaweed researchers participated the meeting. The meeting was inaugurated by Dr M Karthikeyan, Deputy Director, State Fisheries Department. Dr. K Eswaran, Principal Scientist, CSIR-CSMCRI-MARS gave the felicitation address. Dr G Gopakumar, Scientist-in-Charge, Mandapam Regional Centre of CMFRI presided over the function. Dr.I.Rajendran, Principal Scientist

and Dr.Johnson,B., Scientist coordinated the meeting. Scientist on various topics pertaining to seaweed industry and the issues were debated. Current issues in seaweed sector were discussed and appropriate strategies and recommendations were brought out at the end of the meeting and deliberations were communicated to all members who attended the workshop. The major issues and recommendations emerged from the meeting are as follows:

1. There is a steep decline in the farming of *Kappaphycus alvarezii* since August 2013 due to "*Heat Stroke*" *ie*. an increase in temperature above 30°C in the coastal belt from Vedalai to Verkodu areas where *K. alvarezii* was farmed intensively. As a solution to this problem, the authorities recommended to farm *K. alvarezii* at slightly deeper waters where the temperature is ideal for good growth of seaweed. Another recommendation was to exchange the seed materials among maritime districts where farming is being practiced, to overcome the heat stroke and associated climatic problems and was informed CSMCRI to introduce heat resistant strain of *K. alvarezii* to our coastal areas.

2. There is an obvious scarcity of seed material for *K. alvarezii* cultivation in coastal areas of Tamil Nadu, the authorities recommended that the present crisis of seed material will be solved in the beginning of 2015 with the supply of seed from the seaweed farming developmental agencies in the area like Aquagri Pvt. Ltd., Linn Plantae, SNAP. The developmental agencies were also intimated to establish *K. alvarezii* seed stock/seed bank at selected areas to cater the need of farmers. To improve the existing seaweed farming practices and effective seed production, CSMCRI was instructed to replace the older farming methods with improved methods for proper seaweed farming.

3. To achieve the proper insurance coverage for seaweed cultivation, the meet proposed to bring seaweed cultivation

under insured farming practice to compensate the crop loss during natural calamities and the Tamil Nadu State Fisheries Department was intimated for the same

4. The meet intimated the Voluntary organization like MSSRF, Reliance Foundation to create awareness to seaweed collectors for eco-friendly method of collection and to supply the raw material to the industry without contamination and training on SCUBA diving may be imparted to the interested seaweed collectors for effective and safe method of collection.

5. There is drastic reduction in the quantity of wild collected native seaweed like *Gracilaria sp, Sargassum sp* and *Gelidiella sp.* Red seaweeds are now imported from Sri Lanka, Morocco and SAARC countries with import duty varying between 4 – 37%. Due to lack of raw material and high import duty there is a drastic reduction in number of agar industries. To promote the native seaweed production, areas should be earmarked for farming of indigenous seaweeds to promote perennial spore production and consequent sea ranching of spores. In selected areas extensive farm on native seaweed has to be established in order to enhance the seaweed production and to overcome the shortage and CSMCRI was informed for the same. This massive programme has to be executed through appropriate funding agencies. Relaxation of import duty on red seaweeds may be done to save the industry. Granting permission to export the cultivated red seaweed. The possibility of taking the matter can be explored through Director General of Foreign Trade under the Ministry of Commerce and Industry.

6. The representatives of agar industries contented that the reduction in *Gracilaria* and *Gelidiella* was due to *K. alvarezii* cultivation. But Scientists from CSMCRI opined that the reduction may be due to rise in temperature over the years and there was no scientific basis for reduction of native seaweeds due to *K. alvarezii* cultivation.

7. Finally there is consensus among the industrialists for contribution towards cess fund for the benefit of seaweed farmers and CMFRI will take an action to promote the Integrated Multi Trophic Aquaculture by integrating the fish, bivalves and seaweeds for environmental and economic stability.

Appropriate recommendations and suitable action plans were proposed for the issues emerged in the consultation which will be successfully executed through research stations, developmental agencies, voluntary organizations and Tamil Nadu fisheries department.

Dr. G. Gopakumar, SIC & Head, Mariculture Division delivering the presidential address

Dr.M.Karthikeyan, Deputy Director of Fisheries, Ramanathapuram delivering the inaugural address

Stakeholders sharing their views

II. Consultation meeting on sea cucumber (14th August 2014)

The consultation on sea cucumber was organized to debate on the conservation and options for sustainable

management of sea cucumbers in the Palk Bay and Gulf of Mannar region. About 80 stakeholders participated the meeting representing the Government agencies *viz.,* Department of Fisheries, Forest Department, Coastal Marine Police, Indian Coast Guard, fishers, seafood traders and NGOs**.** Dr. D.B. James, Principal Scientist (Rtd.) chaired the meeting. Dr G Gopakumar, Scientist-in-Charge, CMFRI Co-chaired the meeting. Thiru. K Venkatesh, IFS, Conservator of Forest was the Chief Guest for the meeting. Dr.R.Saravanan, Scientist coordinated the meeting. The major recommendations emerged from the consultation meeting were as follows:

1. Stock assessment

Stock assessment of existing biomass (Juveniles/ Adult) of different species of sea cucumbers has to be undertaken to assess the current status of the population consequent to the implementation of ban from 2001. Subsequently stock assessment of sea cucumber population can be conducted once in every five years. This study is also aimed to ascertain the breeding/spawning population of sea cucumber which should be above 20 per cent of the total population for maintaining healthy recruitment. The data thus generated can be utilized while reviewing management strategies.

2. Size restriction

The option to allow the harvest of sea cucumbers above 75mm size and restricting the collection of undersized which is less than 75 mm can be considered if a decision to lift the blanket ban is made in future.

3. Seasonal restriction/Closed season

The option for closure of sea cucumber fishing during peak spawning period of the year to enable successful breeding and recruitment can be considered for the commercially

important species, if a decision to lift the blanket ban is made in future.

4. Research on standardization of commercial level seed production techniques of selected species of sea cucumbers and farming trials

It was recommended that the Central Marine Fisheries Research Institute can take up the standardization of seed production of selected species of sea cucumbers. Farming trials can also be undertaken to find out the feasibility of sea cucumber production through aquaculture.

5. Research on stock enhancement through sea ranching

It was recommended to enhance the wild population of sea cucumbers through land based hatchery production of juveniles and sea ranching the same at selected areas. It was suggested to obtain the required permission to collect the brood stocks of commercially important species for the purpose from the forest department. A monitoring programme to assess the impact of sea ranching has to be undertaken by the concerned research institution.

6. Lifting of ban for the collection of selected species of commercially important sea cucumbers

The fisherfolk participants unilaterally demanded the lifting of ban for the collection of three species of sea cucumbers *Holothuria scabra, H.spinifera, Actinopyga echinites*. Fisherfolk explained the deterioration of their livelihood because of the ban.

7. Database management

A detailed scientific investigation on the distribution, availability, abundance and biological parameters of sea cucumbers from Gulf of Mannar region should be undertaken in order to generate database for developing a management roadmap.

Dr. D. B. James,
Principal Scientist (Rtd.)
chairing the meeting

Dr. G. Gopakumar,
Scientist-in-Charge, CMFRI
moderating the discussion

Stakeholders sharing their views

III. Inception workshop of FAO-BOBLME Projects (27th December 2014)

The inception workshop of FAO-BOBLME Projects "Participatory management for conservation of seahorses in the Gulf of Mannar, south-east coast of India" and "An evaluation of the current conservation measures on sea cucumber stocks in Palk Bay and Gulf of Mannar of India" was inaugurated by Dr.E.Vivekanandan, Senior Advisor of the Projects. The workshop was carried out by conducting group discussion by dividing the participants to different groups. The entire participants were divided into four groups. Each group was asked to discuss on the topic assigned to them. After discussion one representative of the group was asked to make presentation. The salient points emerged in the group discussion is mentioned below:

Group I – Title: What are the livelihood issues and benefits to fishers after banning collection of seahorses and sea cucumber?

i. In general fishers of the following districts *viz.*, Ramanathapuram, Tuticorin, Thanjavur, Nagapattinam and Pudukkottai district in east coast of Tamil Nadu, India felt that the livelihood losses are insurmountable due to the banning of the above resources.

ii. The ban resulted in the venture towards Sri Lankan coast for fishing other resources to reach break-even in fishing operation.

iii. Over capitalisation of mechanized fishing sector has negative effect on other fishing sector.

iv. The clandestine trade on seahorses and sea cucumber resulted in the arrest of fishermen and confiscation of catches by forest department created havoc in fishers' daily livelihoods.

Group II – Title: What is the role of society in resource conservation and livelihood enhancement?

i. To strictly comply with the Tamil Nadu Marine Fisheries Regulation Act and its provisions.

ii. The fishermen community voluntarily can come forward and pledge to govern the resources for today and tomorrow through community participation.

iii. Government assistance in finding alternative livelihood options is very much demanded by the fishers' community because of the banning of resource collection for more than 13 years.

iv. Government and society should support progressive fishing community which adopt sustainable and eco-friendly fishing methods.

Group III – Title: What is the role of research in resource conservation and livelihood enhancement?

i. To initiate and monitor habitat

ii. Creating database on fishers, ecosystem and livelihood alternatives

iii. Building scientific and extension infrastructure

iv. Introducing newer cultivation and conservation methodologies

v. To have a strong outreach programme through ICT for information communication and dissemination.

Group IV – What is the role of Central and State Governments in resources conservation?

i. Building awareness among fishers on the need to conserve resources and the legal instruments available for non-compliance

ii. Fishers in total felt that a separate governing body is required at national level to manage the issues related to marine fisheries.

iii. Encouraging deep sea fishing

iv. Bottom-up approach in government planning schemes for fishers.

v. Temporary relaxation of banned resources with quota and monitoring system.

vi. To initiate the process of moving the schedule I listed marine resources to less severe schedules.

vii. Continuous outreach programme at fishing villages.

viii. Government to strictly implement the provisions of Tamil Nadu Marine Fisheries Regulation Act.

Dr. A.K.Abdul Nazar,
Scientist-in-Charge
delivering welcome address

Lighting of lamp

Dr.E.Vivekanandan,
Senior Advisor of the Projects
chairing the technical session

Dr.G.Gopakumar sharing his
experience on challenges in
conservation of protected species

Group Discussion

Presentation by fishermen representative

IV. Stakeholders Meet on Fisheries and Mariculture (19th April 2016)

In connection with centre Institute Research Council (IRC) a stakeholders meeting was organized at Mandapam Regional Centre of ICAR-CMFRI. A total of 25 fishers representing the mechanized and country craft sectors, attended the meeting. Representation of fishers who are undertaking cage farming, ornamental fish culture, lobster fattening and blue swimmer crab farming were also there.

The fishers were intimated the findings of Fishery Management Plans (FMPS) project and the discussions were carried out for validating the output of the project. Fishers agreed that there was slight increase in oil sardine catch in comparison to previous year and also stated that the stock status of majority of commercial important species like seer fish, silver pomfret, etc., were declining. They too informed that there was a drastic reduction in the size of the fishes captured and an increase in horse power of the engines in mechanized boats in last ten years i.e., from 106 hp to 193 hp. Fishers opined that the sea ranching programme of *Penaeus semisulcatus* which was successfully carried 10 years ago, by the CMFRI, Mandapam was very useful in replenishing the shrimp resource of the region. Hence they requested CMFRI, Mandapam to take efforts to continue sea ranching of *Penaeus semisulcatus* again. The SIC praised the efforts taken by cobia fishermen welfare association for making maiden successful harvest of cobia in our region, which invoked a lot of interest amidst the fishermen groups.

The cage farmers enquired about the possible reason for the recent mortality of cobia in cages. They were clarified by the optimum stocking density of fingerlings, right quantity and quality of feed and periodical net-cage exchange. Further, contented that the cause of the said mortality in cages was due to non-exchange of net cages for a longer period and consequent

reduction of water exchange through the nets due to heavy fouling. To avoid heat shocks (slight increase in water temperature during summer season), the farmers were suggested to increase the net cage depth and to provide shades using cost effective materials like coconut/ palmyra leaves above the cages. The farmers were also encouraged by intimating the quality assurance of seeds before supplying to the farmers (certification of seeds) and the interest of processing plants to procure the farmed cobia at higher prices only if they could get a minimum sustained quantity of 20 tonnes / month of average weight 3.5 kg / fish. The fish farmers then wanted to know the possibility of getting pellet feeds for cobia and they were contented that, local fish feed manufacturer, M/s. Growel Feeds Private Limited, Bhimavaram, Andhra Pradesh was trying to bring out a suitable farming feed for the cobia.

Dr. A.K. Abdul Nazar
Scientist-in-Charge
initiating the discussion

Shri. Nagadoss
clarifying his query on feeds

V. Stakeholder meet: NDF on CITES Appendix II listed species of sharks and manta rays (27th August 2016)

Consequent to the listing of five species of sharks and manta rays in the CITES Appendix II list, the Agriculture Ministry (vide letter no. F.No.27035/3/2013 Fy (IG) dated 19-Dec 2014) has asked Director, CMFRI, the scientific authority on sharks in India, to carry out the Non-Detriment Finding (NDF) study of the CITES (Appendix II) listed species and submit the report. Accordingly,

the draft NDF document has already been prepared and for finalizing the document, it has been decided to convene stakeholder (involved with shark fishing, trading and state administrators) consultations at all centres of CMFRI. The meeting was arranged to collect the stakeholders' opinion on listing of five sharks *viz., Lamna nasus, Carcharhinus longimanus, Sphyrna lewini, S. mokarran, S. zygaena* and two ray species, *Manta birostris* and *Manta alfredi* in the Schedule I of Indian Wildlife Protection Act (1972).

Fishermen, boat owners, leaders of fishermen associations, Official from State Fisheries Department and exporters associated with shark fisheries were represented in the consultation. The stakeholders were given a brief introduction about the background and the necessity of the present study. Out of 5 species of sharks and 2 species of rays on which the NDF has to be prepared, following the instruction from MoEF, GoI after their inclusion in the CITES APPENDIX-II, one species, i.e., *Lamna nasus* was found to be a non-native species for India which was also corroborated by the stakeholders. For the remaining species the facts on (1) the biological aspects such as maximum size, life span, maturity, reproduction potential, population productivity, feeding behaviour and (2) the fisheries aspect such as distribution pattern, catch trend, gear of exploitation, stock status and threats, migration behaviour and trade were presented to the stakeholders and were explained about how these characteristics were used to understand the status of these elasmobranch species. The stakeholders were appraised about the NDF for each and every species based on these biological and fisheries characteristics of the species and their feedback were collected accordingly.

NDFs were explained as positive for the shark species with mandatory conditions and suggestions for improvement of existing monitoring on fishery, trade and stock status and

management measures. There should be the provision for the review and revision of the NDF after five years, if necessary. However, NDF were found and presented as negative for the selected two ray species. The stakeholders were explained about the necessity for the species to be included under Schedule I of the Indian Wildlife Protection Act.

Outcome of the meeting

The content of stakeholder's opinion is briefed below

- The elasmobranch especially the CITES Listed Species is coming less or rare at Mandapam waters.
- Whatever quantum landed is of accidental catch since there is no regular targeted fishery existing in Mandapam waters.
- The survivability of the released back sharks and rays are doubtful unlike turtle, which survive easily.
- Unanimous disagreement towards the listing of rays in Schedule I of Indian Wild Life Protection Act, 1972

The stakeholders duly shared their concern about the status of these elasmobranch species along Indian coast. They expressed that these species are not targeted fisheries along Tamil Nadu coast and only form very negligible and irregular by-catch which are landed occasionally along the targeted resources. According to the fishermen, putting a ban on the ray species will not help in the conservation as these are very sensitive and delicate species which dies quickly after encountering the gear. Since the chances of revival is less after the catch, discarding these species will not add any benefit to the fishermen, especially for the artisanal fishermen who depends on small scale traditional gill net fishing for their livelihood. Removal of these dead or about to die ray species from the gear not only damage the net but also increase the risk of subsequent net damage for other fishermen when discarded as such in to the sea. Therefore, by posing a ban on these species may terribly affect the livelihood of many traditional fishermen. Therefore, most of the fishermen

were not in favour of the idea of including the ray species in the schedule-1 of Wild life protection act of India. Smt.L.Remya, Scientist coordinated the meeting.

Interaction of Scientists with fishers, traders and officials from fisheries department

VI. Stakeholders Meet on Fisheries and Mariculture (11th May 2017)

In connection with centre IRC, a stakeholder meeting was organized on 11th May 2017 at 3.00 pm. A total of 30 fishers representing the mechanized and country craft sectors, attended the meeting. Representation of fishers who are undertaking cage farming, ornamental fish culture and lobster fattening were also there. Deputy Director of Fisheries, Ramanathapuram, Assistant Director of Fisheries, Ramanathapuram & Mandapam also participated the meeting. Dr.A.K.Abdul Nazar, Scientist-in-Charge welcomed the fishers and officials of State Fisheries Department. The SIC insisted that fishermen should play an active role by providing valid inputs in capture fisheries research activities of the region. He also appraised about the mariculture activities. Shri.M.Rajkumar, Scientist presented the findings of Fishery Management Plans (FMPS) project. He said during the year 2016, an estimated 2.08 lakhs tonnes of marine fish were landed along Rameswaram and Pamban coast with an annual increase of 2.1% as compared to 2015. The contributions from mechanized & non-mechanised sectors are 98.3% & 1.7% respectively. During 2016, the contribution of shrimps and crabs to the total landings was 28,316 tonnes for Rameswaram and 43,713 tonnes for Mandapam. *Penaeus semisulcatus* contributed 988 tonnes in Rameswaram and 1,078 tonnes at Mandapam. *Portunus pelagicus* contributed 240 tonnes in Rameswaram and 330 tonnes at Mandapam. He also further provided the resource wise fish catch details. Fishermen agreed and validated the findings.

The fishermen groups have expressed in various forum that the sea ranching of Penaeus semisulcatus which was carried 10 years ago, by the ICAR-CMFRI, Mandapam was very useful in replenishing the shrimp resource of the region. Hence, launching of sea ranching programme is planned to increase shrimp

production and promote the livelihood of fishermen in Palk Bay and Gulf of Mannar region. This will also be helpful for conservation and maintaining the sustainable shrimp stocks in the wild. In this connection, Mandapam Regional Centre of Central Marine Fisheries Research Institute (ICAR-CMFRI) is conducting research on hatchery production of *P.semisulcatus* shrimp seeds for sea ranching programme every month in order to conserve the natural shrimp resources. Dr.Johnson,B. Scientist proposed a vote of thanks and the meeting was concluded by 4.30 pm.

Later around 5.30 pm, about two lakh numbers *P.semisulcatus* shrimp seeds at PL 35 stage were released at Thonithurai, Palk Bay region on 11th May 2017 by leaders of Fishermen associations, Fishermen farmers, Officials of State Fisheries Department, Scientist In-Charge, Dr.A.K.Abdul Nazar and other Scientists of Mandapam Regional Centre of ICAR-CMFRI.

Fishermen sharing their views

Dr.A.K.Abdul Nazar, Scientist-in-Charge, Shri.Issac Jayakumar, Deputy Director of Fisheries, Ramanathapuram, Scientists of ICAR-CMFRI, Mandapam & fishermen releasing the shrimp seeds